

IN THE CLAIMS

1. (Currently amended) A cell observation apparatus comprising: ~~a cell observation chamber and optical observation means;~~

a said cell observation chamber comprising therein a pair of wells and a flow path for communication between communicating of said wells and being arranged in such a manner that cells in cell suspension stored in one of said pair of wells can react with chemotactic factor containing solution stored in the other of said wells to move from one to the other of said wells through said flow path; and

said optical observation means for being adapted to be capable of observing said cells moving through said flow path optically from outside said cell observation chamber, said optical observation means comprising an objective lens arranged vertically upward, an optical axis extending horizontally and a light source illuminating, through said window, said said cells moving through said flow path; and, wherein

a casing housing said cell observation chamber and said optical observation means, is housed in a casing of said cell observation apparatus in such a manner that the side of providing or removing said solutions thereof is partially exposed from said casing, and wherein said optical observation means being is housed in said casing below said cell observation chamber with said objective lens near and below said window in such a manner that the optical axis thereof extends horizontally.

2. (Currently amended) The cell observation apparatus according to claim 1, wherein

    said optical observation means comprises an optical system on a stage movable in an XY two-dimensional plane, said optical system consisting of said an objective lens, a plurality of reflecting mirrors, a half mirror, a light source, and a camera,

said objective lens being arranged near a window provided in said cell observation chamber so as to be capable of observing said cells moving through said flow path; and

said light source generating light which illuminates being adapted to illuminate said cells, moving through said flow path, through said objective lens and through said window optical system to allow said camera to image said cells illuminated by said light visibly.

3. (Currently amended) The cell observation apparatus according to claim 1, further comprising temperature control means, ~~said temperature control means having means for controlling the temperature of the atmosphere in said casing and the main body of said casing to be a predetermined temperature.~~